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a quality. Mingled with air in the right proportion for combustion, the mixture of air and vapor was heated by thermodynamic action of compression, approximately adiabatic up to the temperature of ignition, and the explosion followed. This action is precisely that relied upon in the Diesel gas-engine, recently attracting so much attention, for the ignition of its charge independently of gas-torch or electric spark. The phenomenon has long been known to the engineering profession, although instances of this kind of accident are rare. The use of effective methods of cooling the compressor-cylinder and the employment of lubricating oils of high flashing point constitute the preventives.

R. H. THURSTON.

SCIENTIFIC NOTES AND NEWS.

A BUST of the late Francis A. Walker is now being erected in the courtyard of the Boston Public Library, where it is planned to commemorate other eminent citizens of the city. The bust, which is in bronze, has been made by Mr. Richard E. Brooks, and the cost has been defrayed by an appropriation of \$2,500 by the City Council.

THE London Society of Arts has awarded a silver medal to Professor R. W. Wood, of the University of Wisconsin, in recognition of his work on the diffraction process of color photography.

PROFESSOR MAX PETTENKOFER, of Munich, has been awarded the Pasteur medal of the Swedish Medical Association. This is the first award of the medal which is to be given every ten years for the most important work in hygiene and bacteriology.

DR. HERMAN S. DAVIS, recently expert computer of the U. S. Coast Survey, has been appointed observer at the International Latitude Observatory at Gaithersburg, Maryland, one of the six stations established by the Central-bureau der Internationalen Erdmessung for an investigation of variations of latitude.

LIEUT. C. LECOINTE has been appointed director of the astronomical work at the Brussels Observatory.

A LITTLE more than a year ago, says *Nature*,

the attention of the Council of the Manchester Literary and Philosophical Society was directed to the fact that Dalton's tomb in Ardwick cemetery, Manchester, was in a very bad condition, owing to neglect. A committee was appointed to take steps to put the monument in a thorough state of repair, and there was no difficulty in obtaining subscriptions for this purpose. A full-page illustration of the tomb in its restored condition appears in the latest number of the *Memoirs and Proceedings* of the Society.

THE New York Board of Health is building, at a cost of \$20,000, a laboratory to be wholly devoted to the study of the bubonic plague. It will be erected on the East River front on the grounds of the Willard Parker Memorial Hospital, and special care will be taken in its construction. The laboratory is to be of two-stories 25 x 50 feet. The ground floor will be occupied chiefly with eight stalls for horses that will supply the anti-plague serum. A staircase from the outside will lead to the upper floor, where experiments will be carried on. The walls and floor are of steel and cement, so as to be rat proof, and the windows are especially screened to keep out flies and mosquitoes.

During the recent visit of the *Albatross* to Japan considerable collections were made of the fauna of the coast within the 100-fathom line and on the edge of the Black Stream, the warm current which sweeps close to the eastern shores of the Japanese Islands. A number of rare and interesting species were taken and the collections will be worked up by specialists in the several groups represented. The fishes have already been placed in the hands of President Jordan, of Leland Stanford Jr. University, together with specimens collected by the *Albatross* during a previous visit to Japanese waters. In addition to the Fish Commission collections, Dr. Jordan has in his possession the great collection made by him during the past summer and all the Japanese fishes of the United States National Museum, the Imperial University of Tokyo, the Imperial Museum of Japan and several minor collections.

THE great Serpent Mound of Ohio, which has long been a subject of study and research for American archeologists, has been given by the

Harvard Corporation to the Ohio State Archeological and Historical Society. The mound has been in the possession of the Peabody Museum since 1886, when it was purchased by private subscriptions amounting to \$6,000, chiefly from citizens of Boston. The understanding was that the Museum should take charge of the mound until some local society should be able to receive it. Of late years there has been difficulty in taking care of the Serpent Mound Park, and it has therefore been transferred to the Ohio society.

THE appropriation of \$20,000, made by the New York Legislature of this year for repairs and improvements in Geological Hall of the State Museum, is now being expended in the installation of a steam heating plant and various repairs and new features which will greatly aid the work of the museum and permit the concentration of the departments of the State botanist and the State entomologist in the same building with the department of geology.

PLANS are being formulated for an entomological exhibit, in connection with other divisions of the New York State Museum, at the Pan American Exposition. A small synoptic collection, representing many of the more important economic insects causing trouble in the house, field or forest, together with examples and illustrations of their operations, and a collection showing something of the history and work of the office, will be some of the principal features of the exhibit.

A MUSEUM of commerce has recently been established at Bangkok under the direction of the Japanese Government, which pays all the running expenses except the salary of the director. It is proposed to exhibit in the museum samples of all the commercial products of Japan.

PRESIDENT CLAUSEN, of the New York City Park Department, asked the Board of Estimate some time ago for a bond issue of \$3,000,000, the proceeds to be used in building the New York Public Library at Fifth Avenue and Forty-second street. The application was referred to Comptroller Coler, and his engineer, Mr. Eugene McLean, has reported practically approving the proposed plans. He estimates that a bond issue

of \$2,850,000 will cover the cost. Of this amount Mr. McLean estimates that \$2,700,000 will be needed for construction, \$108,000 for architects' fees and \$27,000 for engineers' salaries and other incidentals. In removing the old reservoir \$500,000 has already been expended.

BESIDES small collections received in exchange from other museums, the Peabody Museum has recently received some important additions to its general collection. Among them is a set of fossils and of Indian relics obtained by Professor Beecher during his trip to Arizona last summer. Professor Brewer and Dr. Coe, who went with the Harriman expedition to Alaska in the summer of 1899, have presented to the Museum two painted Alaskan totem poles, one representing a bear, the other a kingfisher with extended wings. Professor Penfield has given the Museum some interesting calcite crystals obtained by him near Cayuga Lake, New York. The Egyptian collection, derived from the Egyptian exploration fund and secured at Abydos, is on its way to the Museum. It consists mainly of implements, pottery and ornaments, some of them of gold.

THE American Section of the Free Museum of Science and Art of the University of Pennsylvania has received an important collection of ethnological objects from many North American tribes, the result of an expedition undertaken last summer by the curator, Mr. Culin. The expedition was fitted out at the expense of the Hon. John Wanamaker. Mr. Culin accompanied Dr. George A. Dorsey of the Field Columbian Museum who planned the trip. Sixteen tribes were visited scattered from Iowa to British Columbia, and the collections illustrate the life of the North American Indian in many phases. The objects obtained from the Pacific coast tribes are particularly valuable. Even more important collections were made by Dr. Dorsey for the Field Columbian Museum.

THE U. S. Fish Commission steamer *Albatross* has now returned to San Francisco after a fourteen months' cruise in the South Seas and in Japanese and Alaska waters. Mr. Alexander Agassiz's account of some of the scientific results of the voyage has already been published in this

Journal, but it appears that in addition the steamship, under Commander J. F. Moser, has secured important data for charts and maps.

It is stated in *Nature* that Mr. J. S. Budgett, of Trinity College, Cambridge, who, it will be remembered, accompanied Mr. Graham Kerr on his journey in search of *Lepidosiren*, and who last year spent several months investigating the zoology of the Gambia region, has just returned to England from a second expedition to that river. Mr. Budgett's main object was to obtain material for studying the development of the Crossopterygian fish *Polypterus*. In his first expedition he obtained eggs and larvæ which were said to be those of this fish, but which, as it turned out, belonged apparently to a Teleost. Mr. Budgett has in his recent expedition failed to obtain the *Polypterus* material, but he is to a certain extent compensated for this by having obtained a mass of embryological material which appears to be of great interest. Amongst this is a practically complete series of eggs and larvæ of the Dipnoan *Protopterus* whose developmental history had hitherto remained quite unknown. The developmental stages of all three surviving members of the important group Dipnoi—*Ceratodus*, *Lepidosiren* and *Protopterus*, belonging to Queensland, South America and Africa respectively—owe their discovery and first observation to workers of the Cambridge school of zoology.

In connection with the United States Geological Survey, the Yale School of Forestry is to undertake on an extensive scale the measurement of the flow of some of the larger streams of Connecticut. The first station has already been established at Merwinsville on the Housatonic River.

PROFESSOR DAVID P. TODD, of Amherst College, in a lecture in Brooklyn, on November 1st, exhibited biograph pictures of the solar corona taken at the recent eclipse. About 300 pictures were taken in a period of one minute and twenty seconds, and these were reproduced on the screen at the same rate.

THE survey of the crystalline rocks of the Adirondack region and of the Highlands area of southeastern New York has recently made

rapid progress, and the results are now available for the new edition of the large geologic map of the State, which will go to press before the close of this year. Important work has been done in quaternary geology by Dr. J. B. Woodworth, of Harvard University, and Professor H. L. Fairchild, of the University of Rochester.

THE National Geographic Society has decided to discontinue the technical course of lectures during November and December and to omit the Lenten course this season. The course of popular lectures will be opened Friday, November 9, 1900, by Mr. M. H. Saville, of the American Museum of Natural History, New York, the subject being 'The Ancient City of Mitla, Mexico.' The second lecture will be given by General A. W. Greely, Chief Signal Officer, U. S. A., on Friday evening, November 23, 1900. General Greely's subject will be 'A Trip through Alaska.'

THE course of free public lectures for the winter season at the University of Pennsylvania has been announced. The lectures will be delivered in the College Chapel on Tuesday afternoons at four o'clock. Those in science are as follows: March 19, 1901, Lightner Witmer, 'Mind and Body'; March 26, 1901, John M. Macfarlane, 'The Adaptation of Plants to their Surroundings'; April 2, 1901, Arthur W. Goodspeed, 'Color'; April 9, 1901, Edwin G. Conklin, 'Some Recent Advances in our Knowledge of Life'; April 16, 1901, Alexander C. Abbott, 'The Management of Polluted Water Supplies and its Influences upon Public Health.'

ACCORDING to the daily papers officers of the German Government have arranged with the Principal of the Tuskegee Normal and Industrial Institute to send three graduates of that institution to the German colony on the west coast of Africa for the purpose of introducing the raising of cotton among the natives. Two of the graduates are from the agricultural department and one from the mechanical department. The latter will construct gin-houses, etc. Mr. J. N. Calloway, one of the instructors of Tuskegee, accompanies the party to assist in the inauguration of the work.

The German Government pays the men a liberal salary as well as all travelling expenses. The party sails from New York, November 3d, and takes from Tuskegee a full outfit for cotton-raising, including cotton-seed, ploughs, cotton-gins, and wagons and carpentry tools.

WE are requested to state that the second part of the 'List of Private Libraries' compiled by Mr. G. Hedeler, of Leipzig, will soon be ready. It will contain more than 600 important private collections of the United Kingdom, including a supplement to Part I. (United States and Canada). Those possessors of libraries, with whom Mr. Hedeler has been unable to communicate, are requested to furnish him with details as to the extent and character of their libraries if they contain more than 3,000 volumes or have a special character. By doing so, they will, of course, not incur any expense or obligation.

UNIVERSITY AND EDUCATIONAL NEWS.

RUSH MEDICAL COLLEGE, Chicago, is to have a new building costing \$80,000, for which Dr. Nicholas Senn has just given \$50,000. It will be principally used for administrative purposes and will be named Senn Hall.

THE will of Frank Williams, late of Johnstown, makes a bequest of \$300,000 to Lehigh University, for the benefit of worthy students. The income is to be loaned to students who are unable to pay their way through college. Their notes are to be taken for the amount borrowed, and the money, when returned, is again to be placed in the fund.

AMHERST COLLEGE receives \$10,000 by the will of the late Edward N. Gibbs.

AMONG the bequests in the will of John Sherman are \$5,000 to Oberlin College and \$5,000 to Kenyon College.

IT is the purpose of the friends of the late William L. Wilson and of the alumni of Washington and Lee University, of which he was president, to raise by subscription a fund of at least \$100,000 to maintain a professorship in the University, to be known as the Wilson endowment.

MRS. JANE K. SATHER, of Oakland, California, has given \$10,000 to the University of California, the income to be used in the purchase of books for the library. This is in addition to her recent gift of \$100,000, the income from which she is to receive during her life.

THE Harvard Medical School has outgrown its present building and the land on which it stands will sometime be needed for the Boston Public Library. An estate has been bought in Brookline to which it is proposed at some future time to remove the Medical School as well as the allied schools of veterinary medicine and dentistry.

It is proposed to build at Chicago University a group of buildings for the social functions of the University. The group includes a dining hall, assembly hall and a club-house for male students. It is hoped that the \$400,000 needed for the buildings will be subscribed by next spring when building operations will be commenced.

THE total income of the colleges of agriculture and mechanical arts supported wholly or in part by the Government was for the year 1898-99 \$6,193,016; 35,458 students were registered.

THE total registration at the University of Michigan to date is 3,648, divided as follows: literary, 1,537; law, 840; medicine, 520; engineering, 345; dentistry, 268; homeopathy, 71; pharmacy, 67. The total registration last year was 3,441, of whom 167 matriculated after the end of October.

MR. HUGO DIEMER has been elected assistant professor of mechanical engineering at the Michigan State Agricultural College.

PROFESSOR JOHN CRAIG has been appointed extension professor of agriculture and horticulture in the Agricultural College of Cornell University.

AT Cambridge, Dr. G. E. Rogers, of Gonville and Caius, has been appointed demonstrator in anatomy; Mr. C. T. R. Wilson, M.A., of Sidney Sussex College, has been appointed demonstrator in experimental physics and Mr. J. S. E. Townsend, B.A., fellow of Trinity College, has been appointed assistant demonstrator in physics.